

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: RSA

Report Number: P219781

Luminaire Tested: **MRZ-1-REC-X-3-L40-97-FL-UNV-X-STD-LSL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P219781
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P14877)
Test Lab: INNOVATION CENTER (G1)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: RSA
Catalog Number: MRZ-1-REC-X-3-L40-97-FL-UNV-X-STD-LSL
Description: MRZ INTEGRAL LED DOWNLIGHT
40 DEGREE FLOOD OPTIC WITH LINEAR SPREAD LENS, LIGHT LEVEL 3
Light Source: (1) 4000K CCT, 97 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 802.7 lumens
Efficiency: N/A
Efficacy: 66.3 lumens/watt
Spacing Criteria (0/90/45): 0.61 / 0.69 / 0.7
Luminous Opening: Circular (Dia: 0.17' x H: 0')
CIE Type: Direct

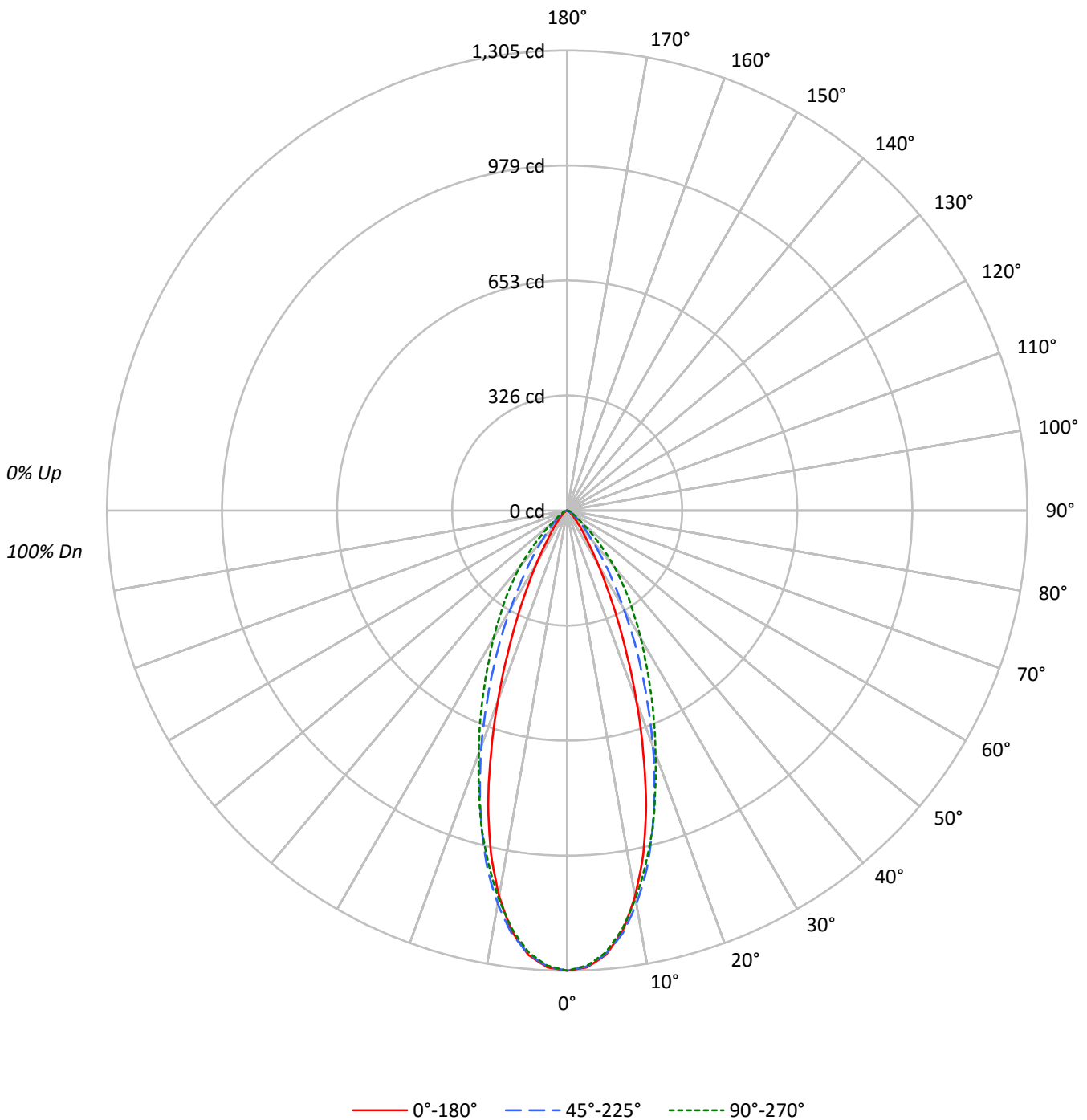
Input Watts (W): 12.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	111	108	106	111	109	106	104	105	103	101	101	99	98	97	96	95	93
2	108	103	99	96	106	101	98	95	98	95	93	95	93	91	92	90	89	87
3	103	96	91	87	101	95	90	87	92	88	85	90	87	84	88	85	83	81
4	98	90	85	81	96	89	84	80	87	83	79	85	81	78	83	80	77	76
5	93	85	79	75	91	84	78	74	82	77	74	80	76	73	79	75	72	71
6	88	80	74	70	87	79	74	70	78	73	69	76	72	69	75	71	68	67
7	84	75	70	65	83	75	69	65	73	68	65	72	68	65	71	67	64	63
8	81	71	66	62	79	71	65	61	70	65	61	69	64	61	68	64	61	59
9	77	68	62	58	76	67	62	58	66	61	58	65	61	58	65	61	57	56
10	74	64	59	55	73	64	59	55	63	58	55	62	58	55	62	58	55	53

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	643811	643811	643811
5°	626262	625073	622745
10°	556200	567472	559757
15°	442135	477890	477890
20°	301743	373411	384647
25°	180354	270178	303766
30°	99414	181280	237453
35°	52220	116546	183763
40°	29820	71104	134609
45°	19048	45563	83660
50°	13663	30088	43751
55°	11268	17376	27612
60°	9374	10558	17564
65°	8289	8289	13892
70°	6780	6780	18897
75°	6863	4575	11247
80°	3410	3410	6819
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.0	14.4
10°-20°	252.0	31.4
20°-30°	218.0	27.2
30°-40°	126.0	15.7
40°-50°	57.1	7.1
50°-60°	20.2	2.5
60°-70°	8.9	1.1
70°-80°	4.2	0.5
80°-90°	0.3	0.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	586.0	73.0
0°-40°	712.0	88.7
0°-60°	789.2	98.3
0°-90°	802.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	802.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1305	1305	1305	1305	1305	
5°	1264	1263	1262	1257	1257	116
15°	866	892	936	944	936	235
25°	331	381	496	569	558	155
35°	87	113	194	288	305	59
45°	27	33	65	114	120	22
55°	13	13	20	26	32	12
65°	7	8	7	11	12	7
75°	4	4	2	5	6	3
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1304.9	1304.9	1304.9	1304.9	1304.9	1304.9	1304.9	1304.9	1304.9	1304.9	1304.9
2.5°	1296.6	1294.2	1294.2	1294.2	1295.4	1295.4	1294.2	1294.2	1294.2	1294.2	1294.2
5°	1264.5	1262.1	1262.1	1263.3	1262.1	1263.3	1262.1	1264.5	1263.3	1262.1	1262.1
7.5°	1202.8	1202.8	1202.8	1204.0	1205.1	1205.1	1205.1	1207.5	1207.5	1209.9	1208.7
10°	1110.2	1112.5	1112.5	1116.1	1119.7	1117.3	1118.5	1125.6	1128.0	1130.3	1132.7
12.5°	997.4	1000.9	1003.3	1005.7	1009.2	1012.8	1014.0	1025.9	1029.4	1034.2	1042.5
15°	865.6	864.4	871.5	875.1	885.7	891.7	895.2	907.1	919.0	926.1	935.6
17.5°	717.1	720.7	724.3	733.8	746.8	755.1	759.9	774.1	793.1	808.6	822.8
20°	574.7	581.8	585.4	596.0	609.1	613.8	626.9	645.9	670.8	692.2	711.2
22.5°	442.9	446.4	455.9	467.8	482.1	492.7	505.8	524.8	550.9	572.3	598.4
25°	331.3	332.5	344.3	355.0	370.4	381.1	388.3	413.2	440.5	467.8	496.3
27.5°	241.0	243.4	250.5	261.2	277.8	285.0	296.8	318.2	344.3	374.0	403.7
30°	174.5	174.5	179.3	191.2	203.0	212.5	220.8	241.0	266.0	290.9	318.2
32.5°	122.3	123.5	128.2	136.5	148.4	155.5	161.5	180.5	200.7	225.6	249.3
35°	86.7	87.9	92.6	97.4	106.9	112.8	117.5	131.8	149.6	171.0	193.5
37.5°	62.9	64.1	66.5	70.1	77.2	80.7	85.5	97.4	111.6	128.2	148.4
40°	46.3	47.5	48.7	52.2	57.0	59.4	62.9	71.2	81.9	96.2	110.4
42.5°	35.6	35.6	36.8	39.2	41.6	43.9	46.3	52.2	60.6	71.2	84.3
45°	27.3	27.3	28.5	30.9	32.1	33.2	35.6	39.2	45.1	53.4	65.3
47.5°	22.6	22.6	22.6	23.7	24.9	26.1	27.3	30.9	34.4	42.7	49.9
50°	17.8	17.8	19.0	19.0	20.2	20.2	21.4	23.7	28.5	34.4	39.2
52.5°	15.4	15.4	15.4	15.4	15.4	16.6	16.6	19.0	23.7	26.1	28.5
55°	13.1	13.1	13.1	13.1	13.1	13.1	14.2	16.6	19.0	21.4	20.2
57.5°	10.7	10.7	10.7	10.7	10.7	11.9	11.9	14.2	15.4	14.2	14.2
60°	9.5	9.5	8.3	8.3	9.5	9.5	10.7	11.9	11.9	10.7	10.7
62.5°	8.3	7.1	7.1	7.1	8.3	9.5	9.5	9.5	8.3	8.3	8.3
65°	7.1	5.9	5.9	7.1	7.1	8.3	8.3	7.1	7.1	7.1	7.1
67.5°	5.9	5.9	5.9	5.9	7.1	7.1	7.1	5.9	5.9	5.9	5.9
70°	4.7	4.7	4.7	4.7	5.9	5.9	4.7	4.7	4.7	4.7	4.7
72.5°	3.6	3.6	3.6	4.7	4.7	4.7	3.6	3.6	3.6	4.7	3.6
75°	3.6	3.6	3.6	3.6	3.6	3.6	2.4	2.4	3.6	3.6	2.4
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1304.9	1304.9	1304.9	1304.9	1304.9	1304.9	1304.9	1304.9	1304.9	1304.9
2.5°	1293.0	1293.0	1291.8	1293.0	1293.0	1293.0	1293.0	1291.8	1293.0	1291.8
5°	1260.9	1260.9	1260.9	1258.6	1257.4	1258.6	1257.4	1256.2	1256.2	1257.4
7.5°	1206.3	1206.3	1205.1	1202.8	1202.8	1201.6	1199.2	1198.0	1196.8	1196.8
10°	1135.1	1133.9	1130.3	1129.1	1129.1	1125.6	1120.8	1120.8	1116.1	1117.3
12.5°	1046.0	1043.7	1042.5	1042.5	1037.7	1037.7	1034.2	1033.0	1030.6	1028.2
15°	939.2	942.7	945.1	943.9	943.9	940.4	939.2	936.8	933.2	935.6
17.5°	833.5	841.8	844.2	847.8	848.9	846.6	843.0	837.1	833.5	831.1
20°	729.0	740.9	749.2	751.6	751.6	750.4	749.2	739.7	738.5	732.6
22.5°	621.0	637.6	651.8	656.6	657.8	659.0	654.2	647.1	644.7	643.5
25°	520.1	542.6	556.9	566.4	568.7	572.3	569.9	566.4	559.2	558.0
27.5°	428.6	452.4	471.4	483.2	489.2	491.6	493.9	488.0	485.6	480.9
30°	346.7	374.0	394.2	410.8	414.4	419.1	420.3	421.5	416.8	416.8
32.5°	276.6	299.2	324.1	340.8	347.9	351.4	357.4	356.2	356.2	355.0
35°	217.3	239.8	262.4	280.2	288.5	293.3	300.4	304.0	305.1	305.1
37.5°	167.4	190.0	210.2	231.5	239.8	245.8	250.5	251.7	252.9	251.7
40°	128.2	149.6	169.8	184.0	190.0	194.7	200.7	205.4	207.8	209.0
42.5°	100.9	116.4	129.4	143.7	153.2	160.3	161.5	160.3	160.3	159.1
45°	76.0	87.9	108.0	111.6	114.0	115.2	118.7	119.9	119.9	119.9
47.5°	60.6	73.6	73.6	78.4	80.7	84.3	85.5	85.5	85.5	85.5
50°	45.1	47.5	51.1	54.6	55.8	55.8	57.0	57.0	57.0	57.0
52.5°	29.7	33.2	34.4	35.6	36.8	38.0	40.4	41.6	40.4	40.4
55°	21.4	22.6	23.7	26.1	26.1	27.3	32.1	32.1	32.1	32.1
57.5°	14.2	15.4	17.8	21.4	21.4	22.6	23.7	23.7	24.9	24.9
60°	11.9	13.1	14.2	15.4	16.6	19.0	21.4	17.8	17.8	17.8
62.5°	9.5	10.7	11.9	13.1	11.9	13.1	14.2	14.2	14.2	14.2
65°	8.3	9.5	8.3	9.5	10.7	10.7	9.5	10.7	10.7	11.9
67.5°	7.1	7.1	7.1	7.1	7.1	8.3	10.7	11.9	13.1	13.1
70°	4.7	4.7	4.7	7.1	7.1	8.3	9.5	11.9	11.9	13.1
72.5°	3.6	3.6	4.7	5.9	7.1	7.1	8.3	8.3	9.5	9.5
75°	3.6	3.6	4.7	4.7	4.7	4.7	5.9	5.9	5.9	5.9
77.5°	2.4	2.4	2.4	2.4	3.6	3.6	3.6	4.7	4.7	4.7
80°	1.2	1.2	1.2	1.2	2.4	2.4	2.4	2.4	2.4	2.4
82.5°	1.2	1.2	1.2	1.2	1.2	0.0	0.0	1.2	1.2	1.2
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)